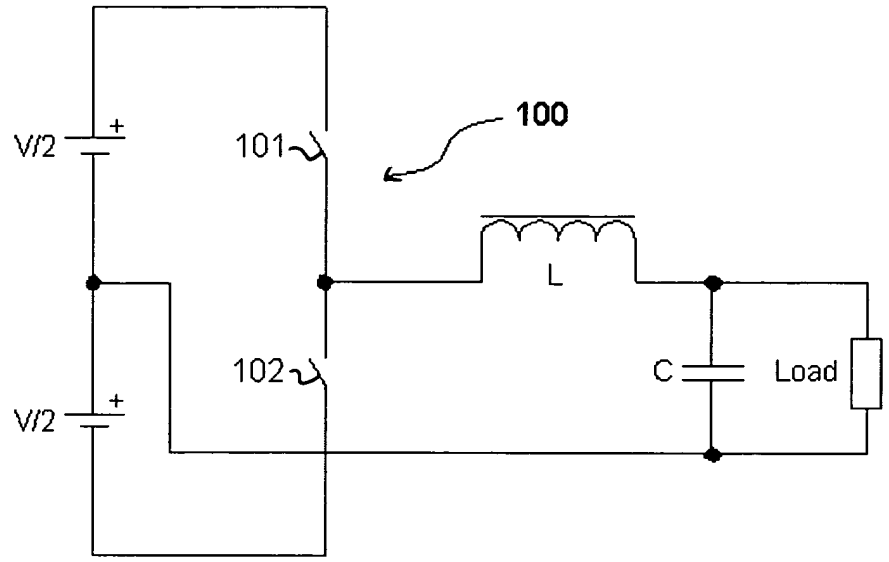

FIG. 1 (Prior Art)

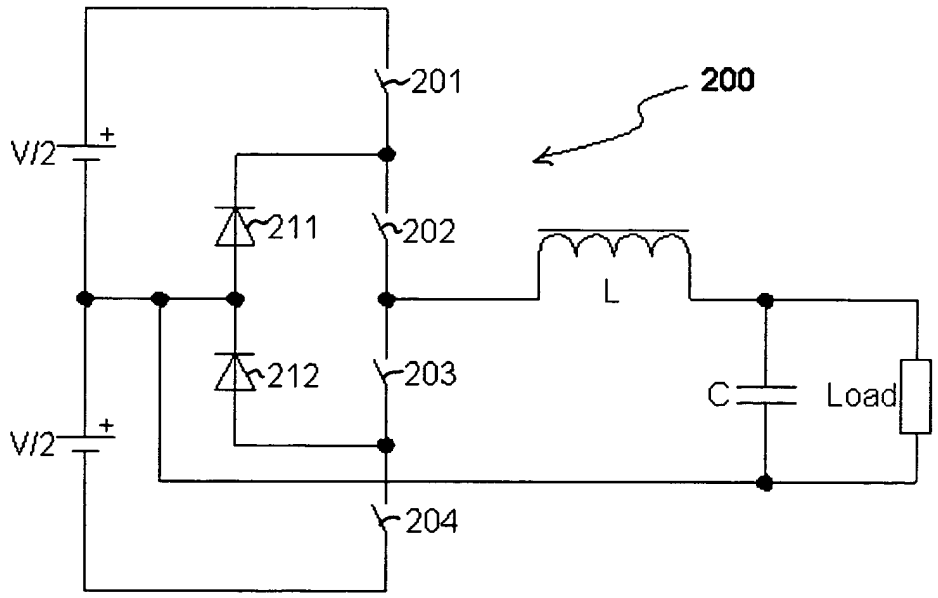

FIG. 2 (Prior Art)

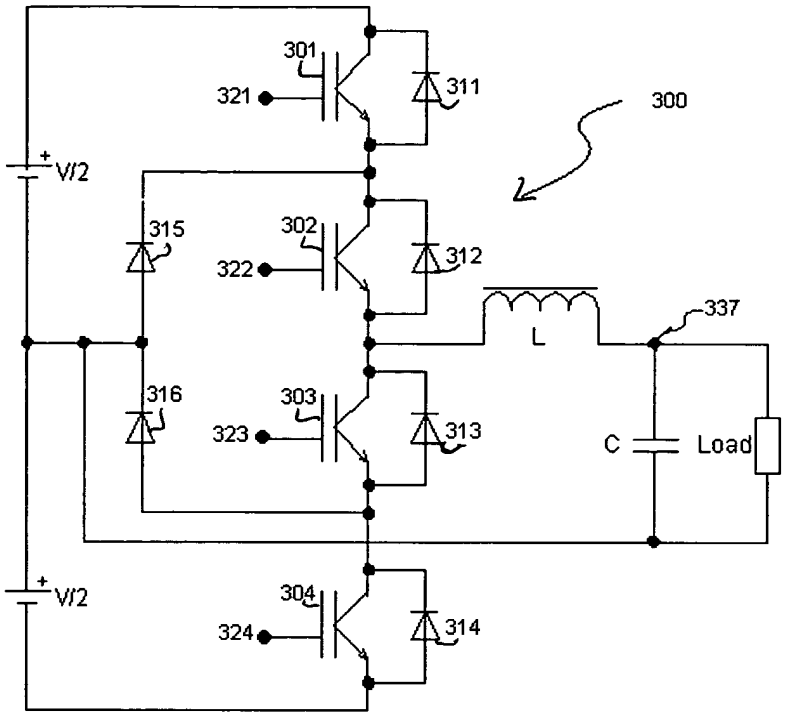

FIG. 3 (Prior Art)

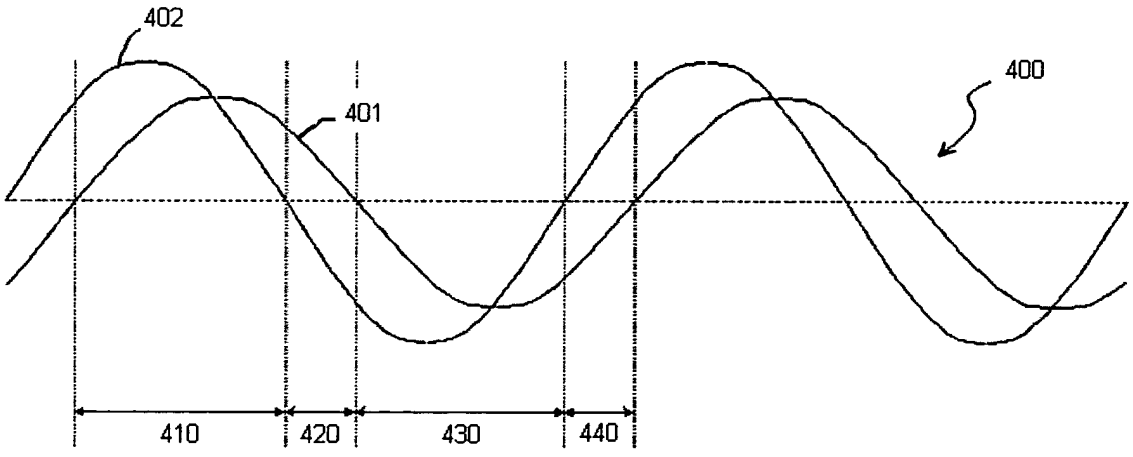

FIG. 4

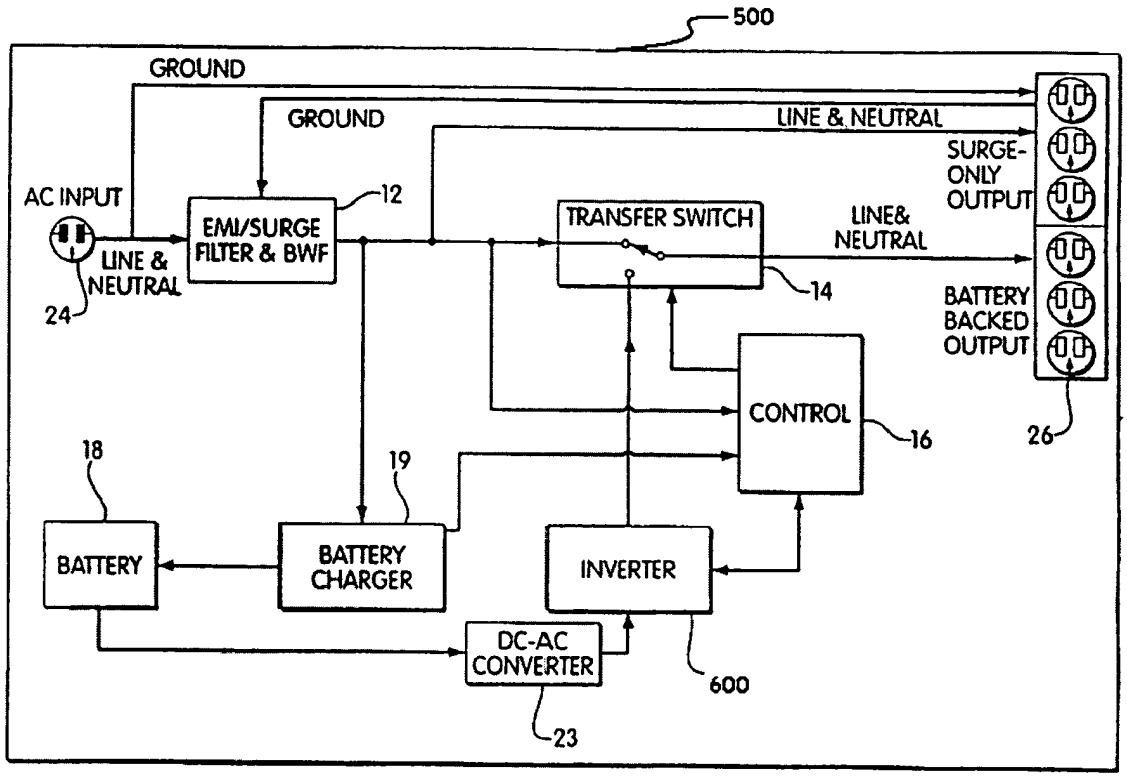
500
GROUND
GROUND
LINE & NEUTRAL
SURGE-
ONLY
OUTPUT
AC INPUT
EMI/SURGE
FILTER & BWF
12
TRANSFER SWITCH
LINE&
NEUTRAL
LINE &
NEUTRAL
24
14
BATTERY
BACKED
OUTPUT
CONTROL
16
26
18
19
BATTERY
BATTERY
CHARGER
INVERTER
DC-AC
CONVERTER
600
23

FIG. 5

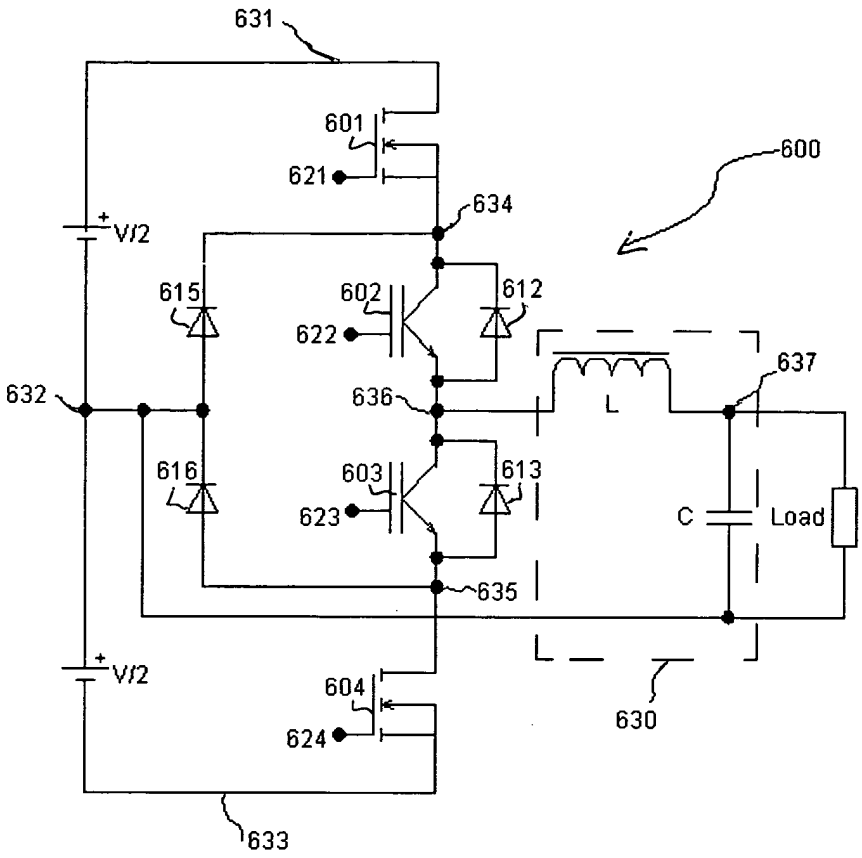
631
601
621
600
634
+
V/2
615
602
612
622
637
632
636
L
616
603
613
623
C
Load
635
+
V/2
604
624
630
633

FIG. 6

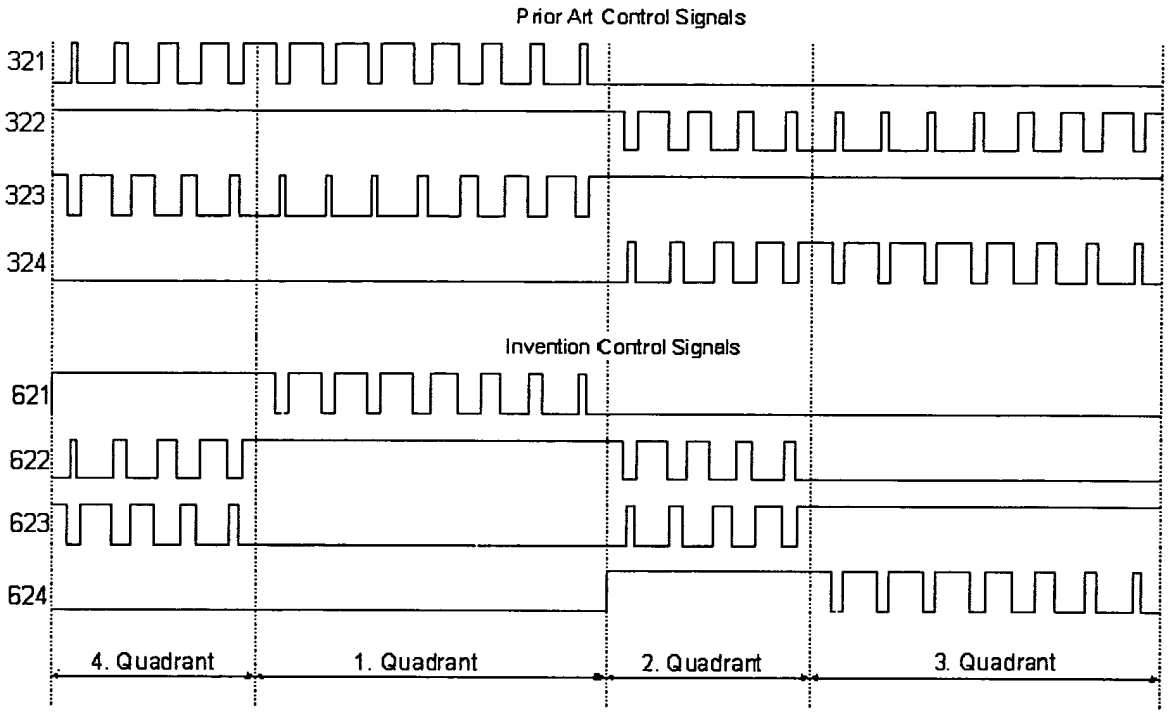
Prior Art Control Signals
321
322
323
324
Invention Control Signals
621
622
623
624
4. Quadrant
1. Quadrant
2. Quadrant
3. Quadrant

FIG. 7

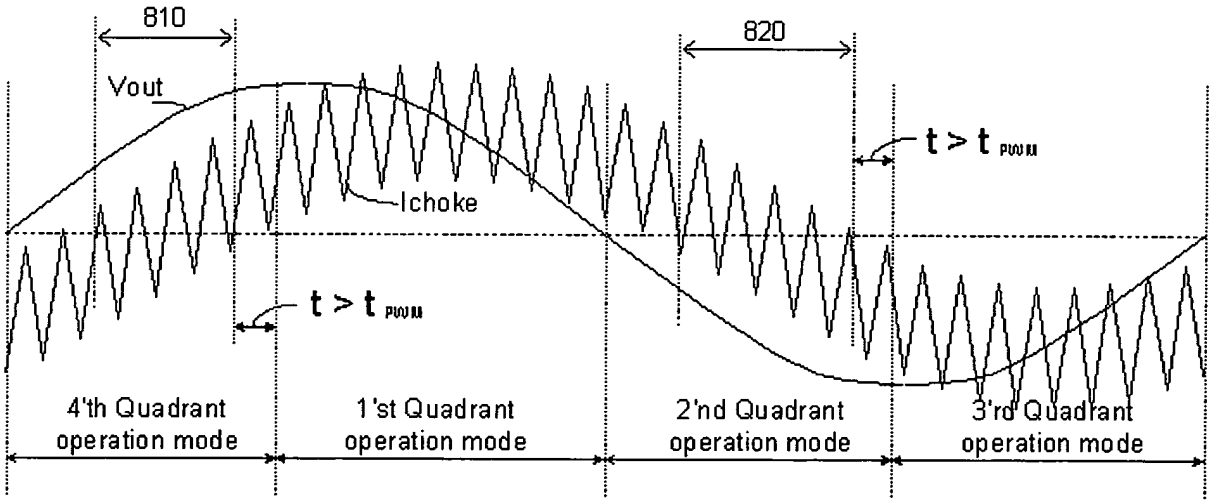
810
820
Vout
Ichoke
t > t PWM
t > t PWM
4'th Quadrant operation mode
1'st Quadrant operation mode
2'nd Quadrant operation mode
3'rd Quadrant operation mode

FIG. 8

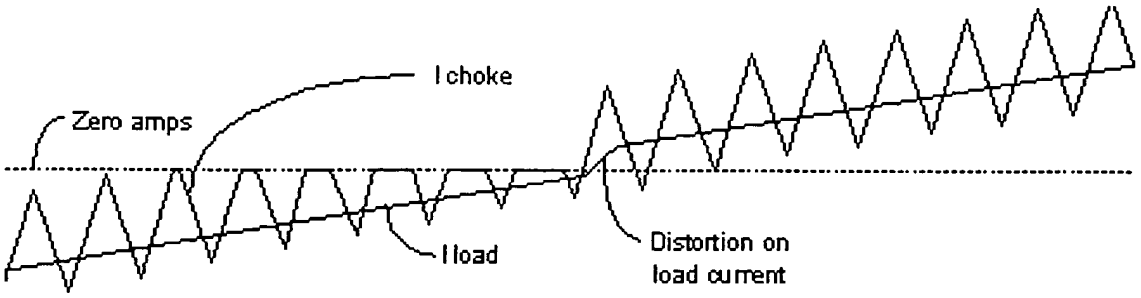
I choke
Zero amps
I load
Distortion on
load current

FIG. 9

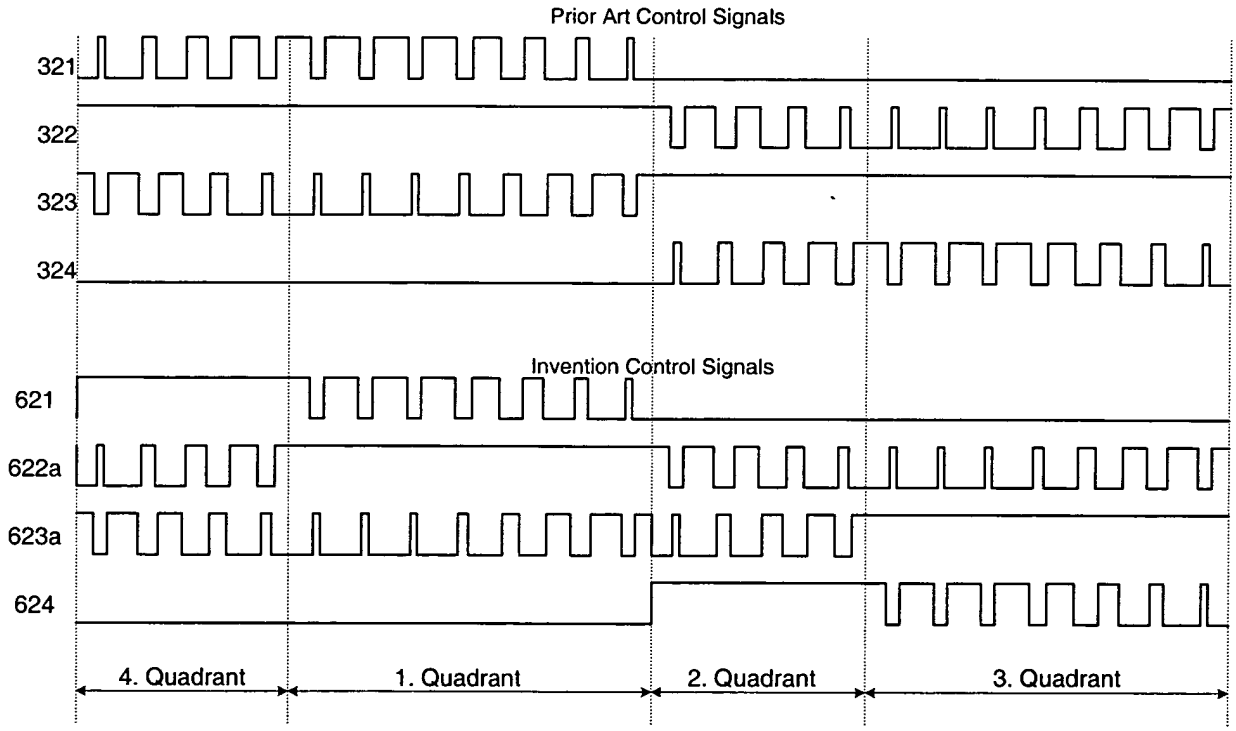
Prior Art Control Signals
321
322
323
324
Invention Control Signals
621
622a
623a
624
4. Quadrant
1. Quadrant
2. Quadrant
3. Quadrant

FIG. 10